

Amendments to the Specification:

Please replace the Abstract of the Disclosure at page 146 with the following amended Abstract. A clean copy of the Abstract is attached hereto.

-- A flow rate/liquid type detecting method for detecting the flow rate of a fluid and, at the same time, detecting any one of or both the type of the fluid and the concentration of the fluid, characterized in that: by using a flow rate/liquid type detecting apparatus comprising a main passage through which a fluid to be detected flows, an auxiliary passage branched from ~~said~~ the main passage, and a flow rate/liquid type detecting sensor device provided in ~~said~~ the auxiliary passage, is provided, and in conducting any one of or both the detection of the type of ~~said~~ the fluid to be detected and the detection of the concentration of ~~said~~ the fluid to be detected, ~~said~~ an auxiliary passage opening/closing valve is closed, and ~~said~~ the fluid to be detected is allowed to temporarily stay within ~~said~~ the flow rate/liquid type detecting sensor device to conduct any one of or both the detection of the liquid type and the detection of the concentration, and in detecting the flow rate of the fluid to be detected, ~~said~~ the auxiliary passage opening/closing valve is opened to allow the fluid to be detected to flow into ~~said~~ the flow rate/liquid type detecting sensor device to detect the flow rate. --

Please replace the paragraph beginning at page 47, line 15, with the following amended paragraph:

-- The liquid type detecting apparatus for an automobile according to the present invention is adapted for the detection of the type of gasoline or a light oil, comprising;
the liquid type detecting apparatuses according to ~~any of claims 1 to 12~~
the present invention, which is provided within a fuel tank or on the upstream side or downstream side of a fuel pump. --

Please replace the paragraph beginning at page 71, line 21, with the following amended paragraph:

-- As indicated by an arrow shown in Fig. 2, a fluid is introduced through a fluid ~~inflow~~ introduction port 18, is passed through a first passage 14, and temporarily stays within a flow rate/liquid type detecting chamber 20. In this flow rate/liquid type detecting chamber 20, a substantially track-shaped flow rate/liquid type detecting sensor opening part 22 is provided on its upper part. --

Please replace the paragraph beginning at page 75, line 4, with the following amended paragraph:

-- First of all, control is carried out by the sensor control unit 9 (or ECU 4) in such a manner that, after the auxiliary passage opening/closing valve 5 is opened, the auxiliary passage opening/closing valve 5 is closed. As a result, the fluid to be detected ~~is-flow~~ flows into the flow rate/liquid type detecting chamber 20 through the fluid ~~inflow~~ introduction port 18 in the first passage 14 in the flow rate/liquid type detecting sensor device 10. Consequently, the fluid is temporarily stayed within the flow rate/liquid type detecting chamber 20. --

Please replace the paragraph beginning at page 79, line 12, with the following amended paragraph:

-- On the other hand, in the flow rate/liquid type detecting sensor device 10, for example, the detection of the flow rate of gasoline is carried out as follows. In detecting the flow rate of the fluid to be detected, by controlling of the sensor control unit 9 (or ECU 4), the auxiliary passage opening/closing valve 5 is opened and the fluid to be detected ~~is-flow~~ flows into the flow rate/liquid type detecting sensor device 10 through the fluid ~~inflow~~ introduction port 18 in the first passage 14 of the flow rate/liquid type detecting sensor device 10. Thereafter, the introduced fluid is discharged from the flow rate/liquid type detecting chamber 20, is passed through the second passage 16 and is discharged through the fluid discharge port 54 into the outside of the apparatus. As a result, the fluid to be detected is such a state that the fluid is allowed to flow into the flow rate/liquid type detecting sensor device 10. --

Please replace the paragraph beginning at page 85, line 18, with the following amended paragraph:

-- On the other hand, as shown in Fig. 21, a flow control ~~plate-1~~ plate 80 is provided on the inner side of the lid member 21 for a liquid type detecting chamber so that the flow control ~~plate-1~~ plate 80 surrounds a liquid type detecting sensor 24, which is provided so as to be protruded into the liquid type detecting chamber 20. --

Please replace the paragraph beginning at page 85, line 24, with the following amended paragraph:

-- This flow control ~~plate 1~~ plate 80 is formed of a plate ~~member 2~~ member 82 of a substantially U shape in section. This plate ~~member 2~~ member 82 comprises a pair of side plate ~~members 3, 4~~ members 84, 86, which surrounds the liquid type detecting sensor 24 from both sides thereof and extends from the fluid introduction port 18 in the liquid type detecting chamber 20 toward the fluid discharge port 11. Moreover, this plate ~~member 2~~ member 82 comprises a covering plate ~~member 5~~ member 88 connected to these side plate ~~members 3, 4~~ members 84, 86. --

Please replace the paragraph beginning at page 86, line 9, with the following amended paragraph:

-- The flow control ~~plate 1~~ plate 80 has a fluid inflow ~~port 6~~ port 90 which confronts the fluid introduction port 18 in the liquid type detecting chamber 20 and a fluid outflow ~~port 7~~ port 92 which confronts the fluid discharge port 11 in the liquid type detecting chamber 20. --

Please replace the paragraph beginning at page 86, line 14, with the following amended paragraph:

-- The fluid introduction port 18 in the liquid type detecting chamber 20 and the fluid inflow ~~port 6~~ port 90 in the flow control ~~plate 1~~ plate 80 are spaced from each other by a predetermined distance L1. Moreover, the fluid discharge port 11 in the liquid type detecting chamber 20 and the fluid outflow ~~port 7~~ port 92 in the flow control ~~plate 1~~ plate 80 are spaced from each other by a predetermined distance L2. --

Please replace the paragraph beginning at page 86, line 22, with the following amended paragraph:

-- According to the above construction, in the case where the introduction of the fluid to be detected into the liquid type detecting apparatus body 12 is stopped to allow the fluid to be detected to temporarily stay within the liquid type detecting chamber 20, the flow of the fluid to be detected within the liquid type detecting chamber 20 is suppressed by the flow control ~~plate 1~~ plate 80. Consequently, the flow of the fluid to be detected around the liquid type detecting sensor 24, which is located within and surrounded by the flow control ~~plate 1~~ plate 80 ~~surrounded by this flow control plate 1~~, is instantaneously stopped. --

Please replace the paragraph beginning at page 87, line 10, with the following amended paragraph:

-- Specifically, the fluid to be detected is reliably introduced, from the fluid introduction port 18 in the liquid type detecting chamber 20, into the flow control ~~plate 4~~ plate 80 surrounded by the flow control ~~plate 4~~ plate 80, through the fluid inflow ~~port 6~~ port 90 in the flow control ~~plate 4~~ plate 80. As a result, the fluid to be detected is reliably ~~entered~~ entered around the circumference of the liquid type detecting sensor 24 which is located within the fluid control ~~plate 4~~ plate 80, so that the liquid type and concentration of the fluid to be detected can be detected with the liquid type detecting sensor 24. --

Please replace the paragraph beginning at page 87, line 21, with the following amended paragraph:

-- After the liquid type and concentration of the fluid to be detected is detected with the liquid type detecting sensor 24, the fluid after the detection can be reliably discharged from the liquid discharge port 11 in the liquid type detecting chamber 20 through the fluid outflow ~~port 7~~ port 92 in the flow control ~~plate 4~~ plate 80. Therefore, the detection of the fluid to be detected can be successively carried out with good accuracy.--

Please replace the paragraph beginning at page 89, line 6, with the following amended paragraph:

-- Further, as indicated by an arrow B in Fig. 22, in this detection, air mixed into the fluid to be detected can be reliably discharged from the fluid discharge port 11 in the liquid type detecting chamber 20 through the fluid outflow ~~port 7~~ port 92 in the flow control ~~plate 4~~ plate 80. Therefore, air does not stay around the liquid type detecting sensor 24, and the influence on the detection can be prevented, contributing to accurate detection. --

Please replace the paragraph beginning at page 89, line 15, with the following amended paragraph:

-- Since the fluid introduction port 18 in the liquid type detecting chamber 20 and the fluid inflow ~~port 6~~ port 90 in the flow control ~~plate 4~~ plate 80 are spaced from each other by a predetermined distance L1, as indicated by an arrow A in Fig. 22, air mixed

into the fluid to be detected is moved through the space toward the outside of the flow control ~~plate 4~~ plate 80 and is discharged to the outside of the liquid type detecting chamber 20 through the fluid discharge port 11. --

Please replace the paragraph beginning at page 89, line 24, with the following amended paragraph:

-- Therefore, the air does not enter the inside of the flow control ~~plate 4~~ plate 80 and, thus, air does not stay around the liquid type detecting sensor 24. This can realize the prevention of the influence of air on the detection and thus can contribute to accurate detection. --

Please replace the paragraph beginning at page 90, line 6, with the following amended paragraph:

-- Even though air enters the inside of the flow control ~~plate 4~~ plate 80, as indicated by an arrow C in Fig. 22, this air can be reliably discharged from the fluid discharge port 11 in the liquid type detecting chamber 20 through the fluid outflow ~~port 7~~ port 92 in the flow control ~~plate 4~~ plate 80. Therefore, the air does not stay around the liquid type detecting sensor 24. This can realize the prevention of the influence of air on the detection and thus can contribute to accurate detection. --

Please replace the paragraph beginning at page 91, line 7, with the following amended paragraph:

-- In order to realize the above function and effect, as shown in Fig. 22, the above predetermined distance L1, L2 is preferably 1.5 mm to 5 mm, more preferably 2 mm to 3.5 mm. Further, the distance L3 between the pair of side plate ~~members 3, 4~~ members 84, 86 in the flow control ~~plate 4~~ plate 80 and the liquid type detecting sensor 24 is preferably 5 mm to 10 mm, more preferably 6 mm to 8 mm. --

Please replace the paragraph beginning at page 91, line 21, with the following amended paragraph:

-- The material for constituting the flow control ~~plate 4~~ plate 80 is also not particularly limited. For example, metals such as stainless steel including SUS 304, synthetic resins such as polyacetal (POM), fiber reinforced resins such as FRPs, and ceramics are usable. --

Please replace the paragraph beginning at page 92, line 2, with the following amended paragraph:

-- In the ~~liquid type detecting apparatus 10~~ flow rate/liquid type detecting sensor device 10 according to the present invention, the circuit construction is as shown in Fig. 7. --

Please replace the paragraph beginning at page 92, line 18, with the following amended paragraph:

-- In the liquid type detecting sensor apparatus 10 having the above construction, for example, the liquid type of gasoline is detected as follows. --

Please replace the paragraph beginning at page 98, line 2, with the following amended paragraph:

-- The construction of the liquid type detecting sensor apparatus 10 in this embodiment is basically the same as the construction of the liquid type detecting sensor apparatus 10 in the embodiment shown in Fig. 20. Accordingly, in Figs. 23 and 20, like parts are identified with the same reference numerals, and detailed explanation will be omitted. --

Please replace the paragraph beginning at page 98, line 9, with the following amended paragraph:

-- In the liquid type detecting sensor apparatus 10 in this embodiment, a heat insulating member 8 is interposed between the liquid type detecting apparatus body 12 and the liquid type detecting sensor apparatus body 12 and the liquid type detecting chamber 20. --

Please replace the paragraph beginning at page 100, line 1, with the following amended paragraph:

-- In this automotive system 100, a liquid type detecting sensor apparatus 10 as shown in Figs. 20 and 21 is provided within a fuel tank 103 or on the upstream side of a fuel pump 110. --

Please replace the paragraph beginning at page 100, line 15, with the following amended paragraph:

-- This automotive system 100 is constructed so that the liquid type of the gasoline within the fuel tank 108 or on the upstream side or downstream side of the fuel pump 110 (in this embodiment, the case of the upstream side is shown for convenience of explanation) is detected by the liquid type detecting sensor apparatus 10. As a result, ignition timing is adjusted by an ignition timing control unit 122 through the control of a control unit 120 depending upon the type of the gasoline. --

Please replace the paragraph beginning at page 101, line 23, with the following amended paragraph:

-- In this automotive system 100, a liquid type detecting sensor apparatus 10 as shown in Figs. 20 and 21 is provided within a fuel tank 108 or on the upstream side of a fuel pump 110. --

Please replace the paragraph beginning at page 102, line 13, with the following amended paragraph:

-- This automotive system 100 is constructed so that the liquid type of the gasoline within the fuel tank 108 or on the upstream side or downstream side of the fuel pump 110 (in this embodiment, the case of the upstream side is shown for convenience of explanation) is detected by the liquid type detecting sensor apparatus 10. As a result, and the compression ratio of gasoline is regulated by a gasoline compression control unit 124 through the control of a control unit 120 depending upon the type of the gasoline. --

Please replace the paragraph beginning at page 104, line 17, with the following amended paragraph:

-- In this automotive system 100, within the urea solution tank 132 or on the upstream side of the urea pump 134, a liquid type detecting sensor device 10 as shown in Figs. 20 and 21 may be provided instead of the flow rate/liquid type detecting apparatus 1 as shown in Figs. 1 and 2. --

Please replace the paragraph beginning at page 104, line 23, with the following amended paragraph:

-- Also in this case, the urea concentration of the urea solution within the urea solution tank 132 or on the upstream side or downstream side of the urea pump 134 (in this embodiment, the case of the upstream side is shown for convenience of

explanation) is identified by the liquid type detecting sensor apparatus 10. As a result, the concentration of urea sprayed toward the upstream side of the catalyst device 116 is regulated so that, in order to efficiently cause a reduction reaction on the upstream side of the catalyst device 116 without causing solidification of the urea solution, for example, constantly, the urea solution comprises 32.5% of urea and 67.5% of H₂O. --